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Abstract

In the course of the 'Meuse Salmon 2000' programme, most weirs and dams (3-8 m in height) of the canalised River Meuse (Wallonia, Southern Belgium) have been progressively equipped with new fishways to restore the free circulation of anadromous salmonids and other amphibiotic and holobiotic fish species. Nevertheless, adult salmonids entering into major spawning streams like the River Ourthe and its tributaries would still be confronted to various kinds of physical obstacles of which the actual impact on fish migration has never been investigated.

In order to test their capacity to clear these obstacles, 88 adults salmonids (54 brown and sea trout, 33 grayling and 1 Atlantic salmon) were captured just before their spawning migration, tagged with radio-transmitters, and tracked in the River Ourthe and two important spawning tributaries, the Aisne and Néblon streams. The study was conducted from October 1995 to April 2000.

Radio-traking indicated that most small dams of the River Ourthe and Néblon stream were not as insignificant as thought at first sight and really could disrupt and/or obstruct the reproductive upstream migration of salmonids. Precise telemetry techniques usually permitted us to identify the main problems arising in each site and propose structural measures (destruction of small old dams, building of new fishways, etc.) to enable a free access to the spawning grounds. Radio-traking studies also revealed that fish could clear most dams in the River Aisne under a wide range of flow conditions.

All small dams recorded in the study were classified according to their type (height, length, slope, structure) and hydraulical characteristics (flow velocity, turbulence) and their degree of facility to be cleared by fish. Results are discussed within the context of harmony between the sustainable conservation of fish populations and the development of small-scale hydropower generation and tourism (aquatic activities other than angling).